

H 688

Museum of Comparative
Zoology
SEP 2 1938
LIBRARY

A-H [odge]
The Bobwhite
no date

73
Pam

Nature Study Pamphlet



The Bobwhite

C. F. Hodge.— Clark University.

Illustrations from photographs by the author.

BOTH INTERESTING AND RELIABLE

**NATURE STUDY TEXTS, REFERENCES, AND
SUPPLEMENTARY READINGS**

Our list of books in this field is large, complete, and comprehensive. Mechanically, these volumes are very attractive, and with few exceptions, beautifully illustrated. They are well written by authorities in each field.

A FEW LEADING BOOKS OF THE SERIES

Cumming's Nature Study by Grades:	{ Primary,	\$.90
	{ Lower Grammar,60
	{ Higher Grammar,75
Carter's Nature Study With Common Things,60
Comstock's Book of Wild Flowers Which Blossom in April and May,25
Overton and Hill's Nature Study,40
Stokes's Ten Common Trees,40
Walker's Our Birds and Their Nestlings,60
Keffer's Nature Studies on the Farm,40
Goff & Mayne's First Principles of Agriculture,80
Apgar's Birds of the United States,		2.00
Apgar's Ornamental Shrubs of the United States,		1.50

And scores of others which are described in our Catalogue No. 643, "The Study of Nature." Write for it.

AMERICAN BOOK COMPANY NEW YORK
CINCINNATI CHICAGO

Going to New York?

RESERVE A BERTH ON THE
"20TH CENTURY LIMITED"

The 18-hour train with all the conveniences of a Club or Hotel, including Stenographer, Barber, Bath, Valet, Maid, Buffet Library Car, with Stock Reports, Daily Papers and Periodicals



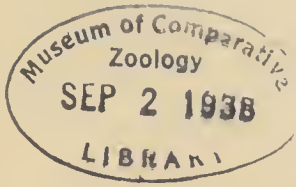
VIA THE
BIG FOUR
New York Central
"The Water Level Route"

Leaves CINCINNATI, 3 P. M. Arrives NEW YORK, 9.25 A. M.

CITY TICKET OFFICE PHONE MAIN 1504
FOURTH AND VINE C. C. CLARK, General Agent



*Published by
The Harvard University Library*



The Bobwhite

C. F. HODGE, CLARK UNIVERSITY

IF nature-study could give but a single bird its proper place on the American continent, let that one be the bobwhite. Gibson has called the song of the toad "the sweetest sound in nature." It must be that he never heard the flock-talk of a covey of young bobwhites. Then, too, we have the exquisite gathering call of the flock at evening and the cheerful whistle, and, at closer range, no end of small talk by both old and young birds all day long. With this one species our world would not be devoid of pleasing bird music. Again, to hold the insects in check and to destroy the weed seeds we need, as we shall see later, to have our gardens, fields, pastures, and roadsides literally alive with these most useful birds.

And finally, the birds are delicious eating and very prolific and furnish, many claim, the finest field sport of any game bird. After the country is fully stocked, the enormous surplus which would have to be killed every fall would put beef trusts to confusion. How can nature-study and the work of our boys and girls put this bird, properly appreciated, into every garden, field, and cover in America?

The first thing we can do is to unite upon an appropriate name, and this has now been practically decided upon. In the Southern States it has been called the "partridge" and in the North the "quail." Both names really belong to quite different European birds; so North and South can not do better than to unite upon a good American name, "Bobwhite," the name he whistles to his mate.

The range of the bobwhite extends from the Gulf

States and Florida to Southern Maine, westward to Central South Dakota, and south to Eastern Texas, thus including almost the entire Eastern and Central United States. This bird is pushing its range westward with the home-makers, and we could help it much farther north by a little attention to winter feeding and protection, particularly during ice and sleet storms. At such times the coveys become imprisoned under the crust and starve before they can escape. With plenty of weed seed within reach, the hardy little fellows would doubtless withstand almost any degree of cold. A few piles of weeds, millet, or buckwheat disposed about the farm in sheltered, sunny places might thus extend the range of the bobwhite far to the north.

We can supply both food and shelter and also protection from enemies by combining brush and weeds in the same piles—a device which the writer has used successfully for three years past. Cut weeds of any and all kinds, especially wild millet and pigeon grass, as soon as the seeds ripen and before they begin to shell. They ought to be cleaned out of the garden, barnyard, and fence corners at this time anyway. Selecting a sheltered place on the south side of a hill or grove, put down a pile of the weeds, say a foot thick; on top of this lay a good foot of stout brush, add another layer of weeds and another of brush; cap the whole with a thick layer of weeds and put a rock or two on top to keep the wind from blowing it away, or lean a few sticks over the pile, and you have the greatest possible device for feeding and protecting your winter birds. The purpose of the brush, of course, is to make spaces through which the sun can shine deep into the pile. If many birds are feeding, and there is danger of the seeds running low,



Cn His Customary Perch, Whistling

loft sweepings, screenings, or millet may be thrown into the south side of the rick any time after severe storms in the winter. The brush must be strong, so that no amount of snow or ice can crush it down; or, instead of a safe shelter, we may have a death trap.



Bobwhite Chick Three Weeks Old—Usual Occupation

Bobwhites sometimes come into the barnyards to feed with the poultry, and coveys may often be brought through the winter by encouraging them to do this.

A reasonable estimate places our annual loss caused by weeds at \$17,000,000, and the yearly tax imposed by insects at \$795,100,000. The natural food of the bobwhite is weed-seed and insects, and it seems to like the worst kinds best.

Mrs. Margaret Morse Nice has just completed an exhaustive study of the food of the bobwhite. Instead of killing the birds and analyzing the contents of the crop, she has worked by the living feeding-test method. That is, she has offered different foods to the birds and has counted or weighed the amount eaten. The total food for a day forms a natural unit in this work, and a great many of these daily dietaries have been studied; among them we may quote a few:

1,350 flies, eaten in one day by a laying hen along with weed-seeds and green food.

5,000 aphids, besides other food.

1,286 rose slugs, July 2. (Test by Mazie Hodge, aged 8 years.)

37 grasshoppers and 2,400 seeds of pigeon grass, by a six-weeks-old chick.

65 large black crickets, October; no grain or seeds; half of these crickets must have been females and packed with eggs.

84 large and medium-sized grasshoppers, October, by a seven-week-old chick; no seeds or grain.

700 insects, 300 of them grasshoppers, by a laying hen in July; about one ounce of insects.

1,532 insects, 1,000 of them grasshoppers, weight nearly an ounce, by a laying hen in July.

48 grasshoppers (19 gm.) and 10 gm. seeds, by an adult in October; together a little over an ounce.

Interesting tests were also made to determine how many weed-seeds of a single kind a bird would eat in a day. They were not given insects or grain, but were always allowed all the green food, apple, chickweed, lettuce, cabbage, etc., they needed in addition to the single seed offered. Some of the tests were:

Burdock, 600;	Beggar ticks, 1,400;
Curled dock, 4,175;	Rabbit's foot clover, 30,000;
Dodder, 1,560;	Smartweed, 2,250;
Black mustard, 2,500;	Evening primrose, 10,000;
Plantain, 12,500;	Lamb's quarters, 15,000.
Pigweed, 12,000;	

By this method Mrs. Nice has added sixty-one weed-seeds to the sixty-eight species which the Department of Agriculture had previously discovered by stomach examination. Among the additions are such pets as "pusley," Canada and bull thistle, dodder, fireweed, wild carrot, ironweed, plantain, mullein, oxeye and yellow daisy, burdock, and witch grass.



Chums

The bobwhite has been discovered to eat 135 different kinds of insects, many of them the most injurious that we have; the potato beetle, which few other birds eat, cucumber beetle, cut worms, army worm, wire worms, chinch bugs, cotton boll worm, and cotton boll weevil. Mrs. Nice's observations have added a few specially significant species to the Government lists, among them mosquitoes, typhoid and stable flies (larvæ, pupæ, and adults), squash bugs, plant lice of many species, moths, cabbage butter-

fly, peach-tree borer, codling moth, carpet-beetle, clothes moths, and the Hessian fly.

These studies, which constitute the most careful and complete investigation ever made of the food of any bird, have enabled Mrs. Nice to estimate that a bobwhite hen will eat an average of 75,000 insects and 5,000,000 weed-seeds

in a year—about $7\frac{1}{2}$ pounds of insects and 10 pounds of weed-seed. The paper, soon to be published in full, will constitute the most complete evidence that the bird, until the country is well stocked, is worth one hundred-fold more alive and at work than dead. Three years ago I was told of a farmer who was asked by some hunters to allow them to shoot bobwhite on his land. He replied, "I don't like to be unneighborly, boys, but I had much rather you would go into my barnyard and shoot my chickens." From the point of actual money values involved, the farmer may well have been right. As a farmer boy I have seen chinch bugs two or three inches deep on the platform of the reaper—more bugs than wheat. We harvested three or four bushels of shriveled grain to the acre—but there were no bobwhites on the farm.

The above is not intended to suggest any objection to field sport. The more we have for the boys, and for the girls too, the better; but is not the bobwhite worth too much, for the work it is able to do, to use for sport, until the country is fully stocked with them, up to the natural limits of insect and weed-seed food supply? When this condition is reached, both farmer and sportsman will reap a rich reward.

A pair of bobwhites has been known to produce one hundred eggs in a season. Five hens reared by the writer produced an average of sixty-five eggs apiece. The birds do not brood well in confinement, but toward the end of the season both the cocks and hens have incubated successfully and have reared their broods. The method followed has been to leave the nests undisturbed until well filled, and then, if neither bird is inclined to brood, the eggs are put



Bobwhite's Nest under the Spruces

under cochin bantam hens and plaster of Paris casts of the eggs are placed in the nests. They do not seem to know the difference, and continue laying as before. If the cock begins to brood, the hen usually makes a new nest and continues laying. If there are no rats, cats, or other vermin about, and especially if turkeys can be raised in the locality without danger of black-head, the bantam hens may be allowed to rear the chicks. We must be sure that they have plenty of insects for the first few days. We may get these by sweeping the grass with an insect net, by setting wire-cage traps for flies, singeing their wings before feeding, by turning over stones and gathering the "ants' eggs" under them, by cutting branches and plants covered with plant lice—the best first meal for the chicks—and by collecting

meal worms about the feed bins and pigeon lofts, and, best of all, spiders about the cellar and stable windows. Fly maggots are a good food, and we can raise them by the bushel, as people commonly do for young turkeys and pheasants. They should be allowed to reach their growth, empty themselves of all food matter, and wallow themselves clean in dust before being fed. We can also raise mealworms in any quantities, and they have tided many a flock over a week of cold or stormy weather, when maggots would not grow and all other insects were in hiding.

Artificial foods are also good to tide over a scarcity of insects. Sour milk curds, common cheese grated or crumbled, bread crumbs, either dry or moistened with sour or fresh milk, boiled rice, grated carrot, boiled potato, all sorts of berries in season, and apple, fresh chickweed, sorrel, clovers, grasses, lettuce—these offer a sufficient variety to keep the birds for a considerable time. The standard food is “plain custard” (made by beating an egg with a half cup of fresh milk and baking or scalding until coagulated). Rich foods must be fed sparingly—a difficult thing to do—and the one rule to insure health is keep appetite keen and vary and alternate sharply different kinds of food. Bear in mind the ceaseless variety which the birds find as they feed naturally: here a few insects, there some berries, next weed-seed or tender leaves.

If rich meals follow in succession, bacteria are likely to develop along the alimentary canal and kill the bird. If a meal of custard is followed by one of strawberries, blackberries or raspberries, sorrel blossoms, chickweed, anything coarse and sour, the pestiferous bacteria are killed or swept out. Bacteria grow best in neutral or alkaline media, and

so sour milk and sour curds are good to alternate with custards. If there is no black-head disease, or other fowl ailment about, the chicks may be permitted to forage for themselves about the lawn and gardens. If the ground has been contaminated with disease germs, they can not be reared with hens and must be cared for in brooders and allowed to run and forage only where barnyard fowls do not go.

In brooders, with careful feeding and strict cleanliness, bobwhite chicks can be reared as easily as bantams. They grow rapidly and need very little care beyond the first month. They tame readily, and if, for the first weeks, a whistle is used consistently while caring for them, they soon come to answer it and follow it as they would the call of a parent. After ranging out and filling their crops they will fly home to the whistle from a distance of several hundred yards until late in the fall and they are practically full-grown. To give the call, hear the cheerful answer, and suddenly have the air filled with whirring wings about your head as the flock alights at your feet, is a delightful experience which I hope all my readers may enjoy with flocks of their own. I had fully expected to be obliged to pinion or clip their wings as they began to use them, but the little charmers richly repaid me for not doing so. I am always careful, however, to have the home cage the most comfortable place they can find. There is always fresh water, and their seed mixture to scratch over, a little pile of brush and weeds for cover—they love cover as ducks love water—and, above all, a tray of fine warm dust. A place with all these attractions is a “home” rather than a “cage,” and the birds learn to depend upon it.

I give these hints about rearing the chicks for just one

reason. Thousands of nests are cut over or disturbed and deserted every year in the harvest and hay field, and with knowledge of the great value of the birds and of how to rear the chicks, the boys and girls of the country might save many of these eggs, now wasted, start a race of tame bobwhites, work everywhere for intelligent conservation of the birds, and within ten years have them, properly appreciated and protected, in every garden and farm in, at least, the natural range of the species. Is it too much to ask of nature-study that it do just this service for the country and for the bobwhite?

The first thing to know is that the eggs may be carried at any stage of incubation in a hat worn on the head, and for hours, if necessary. The writer has had ruffed grouse eggs carried thus—walking and riding in trolleys and trains—from nine in the morning until nearly seven in the evening, and a few days later every one hatched. One clutch actually hatched successfully in the hat of a man who was bringing them home. After making a portable incubator, with hot water bottle, thermometer and alcohol lamp, they were all discarded after trying this easy method, and it has left nothing to be desired. Most people wear hats—felt are the best for this purpose, but straw hats have often served, with a handkerchief laid in the crown to retain the heat—and any eggs may be kept warm and transported by the hat method and thus saved, which would otherwise go to waste.

The law of all preserves is, "The beginning of game protection is extermination of vermin." Obeying this rule, when the writer began raising the birds on his place, every rat was killed, every skunk—seventeen were trapped on a



Flock of Tame Bobwhites as they live about the house. This Flock would feed about the Garden and Orchard and fly home to whistle

place within the residence section of Worcester; every crow that attempted to hunt on the premises was, at least, shot at, and with due warning to all concerned, no cat was per-



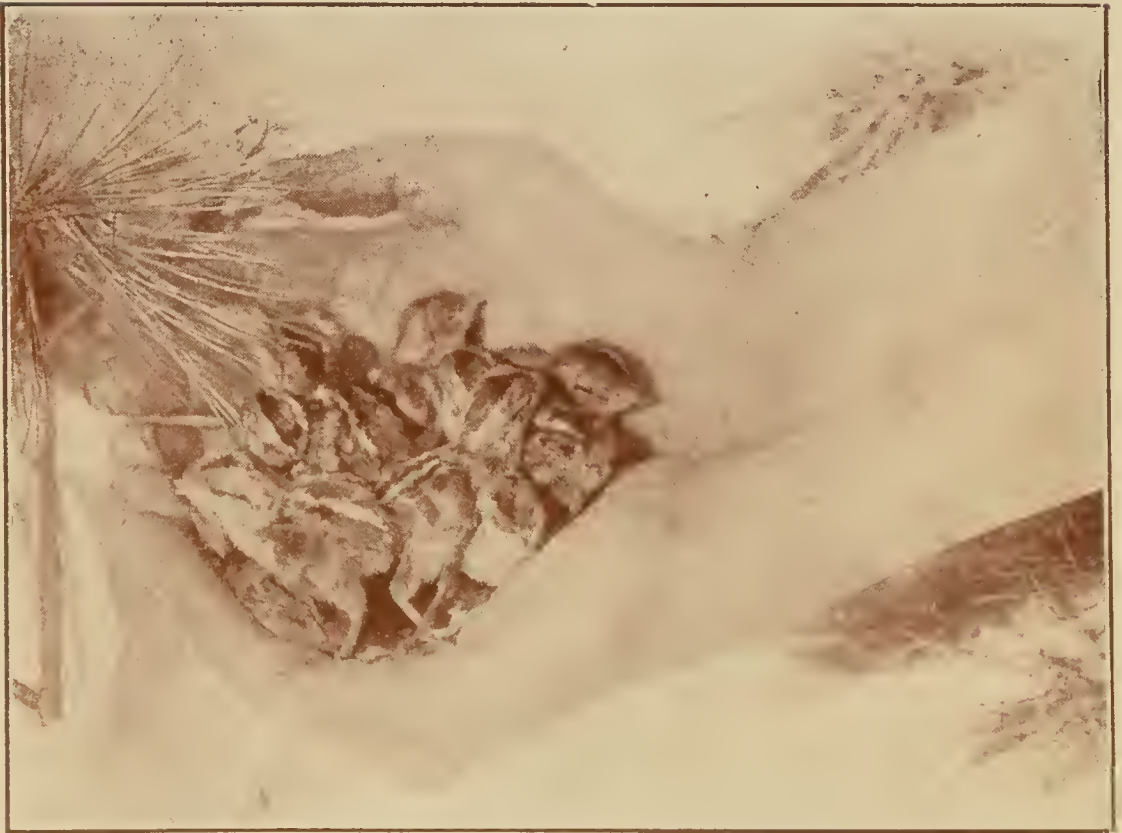
Bobwhite Cock

This Bird brooded a nest of sixteen eggs, bringing off fifteen chicks. He had been reared in domestication the year before

mitted to leave the place alive. Not a bird could have been reared had not these measures been taken; and the one and only enemy that has caused great loss and intolerable misery throughout the whole work has been the uncontrolled cat.

Follow with me just one actual story for part of a season. The cock shown in the picture with the young is brooding his nest of sixteen eggs. He is in a wire-covered yard forty feet square, including the bases of two large spruce trees. The period of incubation is twenty-four days. All goes

well for the first two weeks; then the dog, obtained to keep the cats away, deserts to a former home. Four times during the last ten days the bobwhite is frightened off his nest by cats climbing about over the wires. Each time the eggs are quickly taken from the nest and placed under a bantam hen kept brooding for the express purpose. Plaster of Paris eggs are put into his nest, the yard is hunted over tuft by tuft with a lantern, he is found and put back on his nest. While he is off to feed next day, his own eggs are put back. He finally brings off fifteen fine, healthy



"A Little More Cat Feed"

chicks, his mate now joins him in their care and they have reared the brood of perfectly clean and healthy little fellows for three weeks. The dog takes another vacation on a cold, dewy, almost frosty night, a cat disturbs them, and only three of the chicks are alive next morning. The rest are found scattered and chilled in the wet grass. "Perhaps it was something else," you say? The cat was caught in a trap at the corner of the cage the next night.

No one has any objection to cats, as pets properly cared for and controlled; but we must face this problem fairly. We may start our twenty million children to protecting and caring for the birds. Under present conditions all this effort will mean: "A little more cat feed." People everywhere are asking, "Why do we not have more birds?" or, "How can we have more birds?" Forbush followed a cat for a single day and actually saw her break up six birds' nests, killing all the young and two of the parent birds. For a number of localities observed by the writer he is convinced that cats have done more to exterminate the bobwhite than sportsmen and all other natural enemies combined.

But after all, the bobwhites themselves have paid the score in full by the delight they have given as pets. It is the great value of these birds in this relation to our children that affords the hope that they may be, ere long, properly appreciated and protected in every field, garden, and home in the land.

Reprinted from *Nature and Culture*,
Devoted to Nature Study.

Send 2 cts. for Sample Copy.

Nature and Culture, No. 4 W. 7th St.
CINCINNATI, O.



Cleanliness is next to Godliness and SOAP AND WATER are the surest foes of dirt. *You can't wash wall-paper;* disease germs and dirt cling to its very fibre. You must either scrape it off or paper over it, germs, dirt and all. Kalsomine is even worse. And ordinary paints are impossible for fine interior finish owing to their gloss.

JOHNSTON'S Dull Kote Paint

combines the soft beauty of tints and hangings with the cleanliness of tile. SANITARY, WASHABLE, PERMANENT, it presents a finished surface of the most delicate texture, free from gloss, smooth, even, but as hard as flint. Insist on having the genuine *Johnston's Dull Kote*, not merely "dull coat." Use it exclusively on all your better grade work. We carry it in stock in twenty beautiful shades.

THE R. F. JOHNSTON PAINT CO.
PEARL AND MAIN STREETS, CINCINNATI, O.

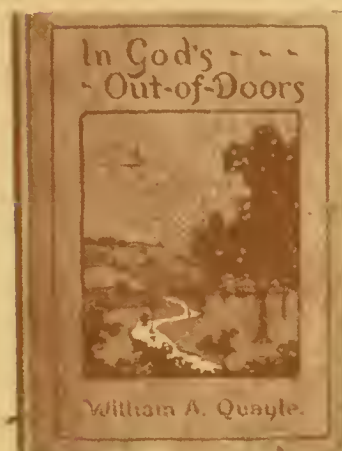
*Headquarters for Painters' Supplies,
Oils, Varnishes, Brushes, Putty.*

Cars Stop at the Door—Transfer

A SUPERB VOLUME OF NATURE STUDIES

In God's Out-of-Doors

By Bishop William A. Quayle, author of THE
POET'S POET, THE PRAIRIE AND THE SEA,
A HERO AND SOME OTHER FOLK, etc.



The Boston Evening Transcript says of this delightful volume: "Decidedly a nature book worth the doing and having. Although the pictures follow one another in rapid succession, the text itself is of more than sufficient interest to hold the reader's attention."

As one interested in nature, *you* will appreciate IN GOD'S OUT-OF-DOORS. It is the most original and the most attractive book of its kind. There are no technicalities in it. But you do not know what sights are to be seen, what sounds are to be heard, what delights are to be felt, until you have gone out-of-doors with Quayle. He is the friend of birds and beasts and all the growing things that live in fence corners and in the deep woods, and by running streams.

ORDER TO-DAY

8vo. *Elegant cloth binding. Splendid half-tone illustrations. 232 pages. Gilt top. \$1.75 net, postpaid. Also a de luxe edition, \$3.50 net, postpaid*

Jennings & Graham 220-222 West Fourth Street
Between Elm and Plum
CINCINNATI, OHIO

New Millinery

Some stores make their appeal for patronage on style, quality, and variety; other stores talk "low prices." The Fair combines them all. Tasteful hats at lowest prices—that's what you get here. Particularly good values at \$5 and \$7.50.



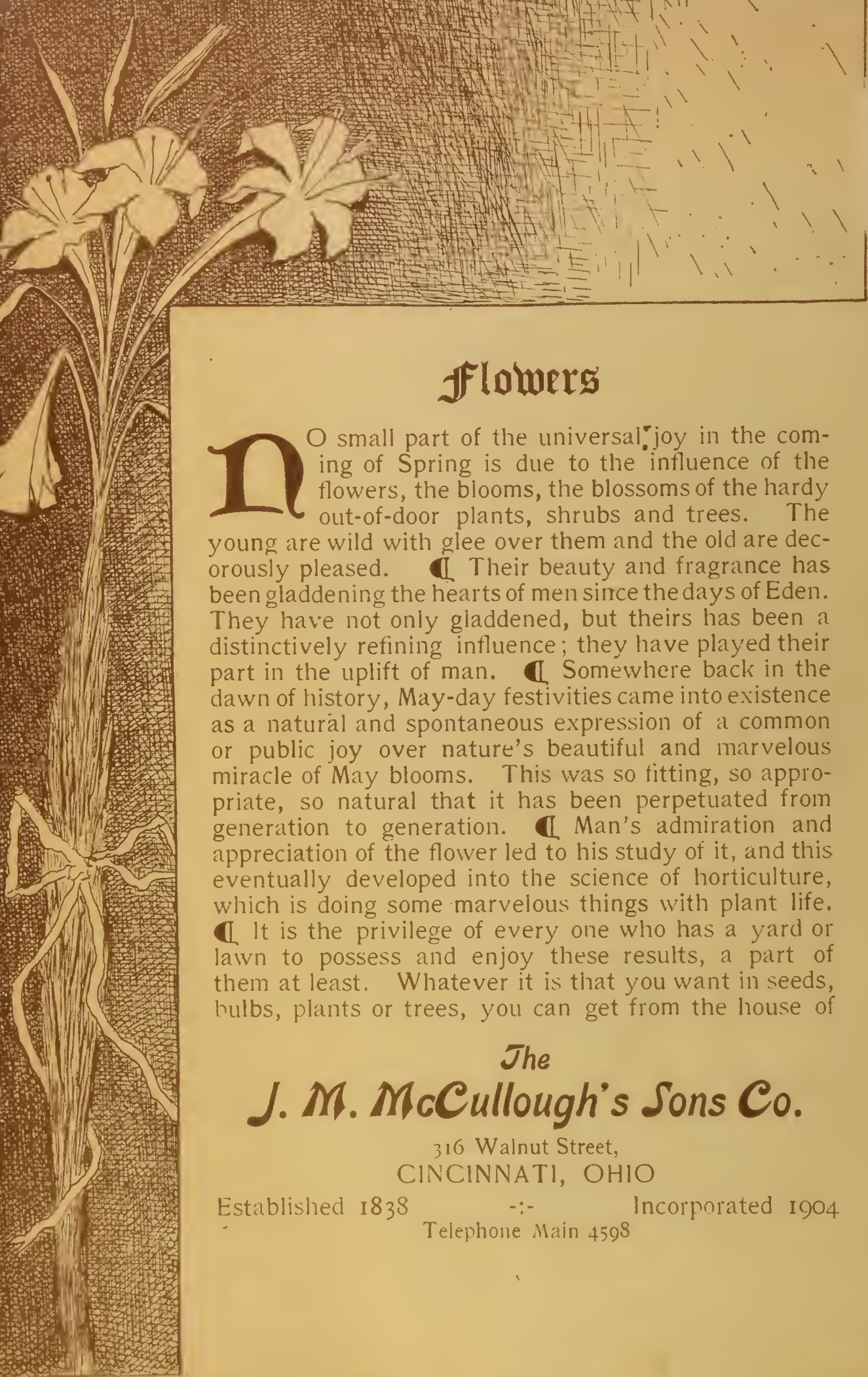
It Pays to Shop at The Fair

THE FAIR

Sixth Ave. and Race St.



A Book of Surety Stamps can be exchanged for \$2.50 in merchandise



Flowers

NO small part of the universal joy in the coming of Spring is due to the influence of the flowers, the blooms, the blossoms of the hardy out-of-door plants, shrubs and trees. The young are wild with glee over them and the old are decorously pleased. ¶ Their beauty and fragrance has been gladdening the hearts of men since the days of Eden. They have not only gladdened, but theirs has been a distinctively refining influence; they have played their part in the uplift of man. ¶ Somewhere back in the dawn of history, May-day festivities came into existence as a natural and spontaneous expression of a common or public joy over nature's beautiful and marvelous miracle of May blooms. This was so fitting, so appropriate, so natural that it has been perpetuated from generation to generation. ¶ Man's admiration and appreciation of the flower led to his study of it, and this eventually developed into the science of horticulture, which is doing some marvelous things with plant life. ¶ It is the privilege of every one who has a yard or lawn to possess and enjoy these results, a part of them at least. Whatever it is that you want in seeds, bulbs, plants or trees, you can get from the house of

The
J. M. McCullough's Sons Co.

316 Walnut Street,
CINCINNATI, OHIO

Established 1838

-:-

Incorporated 1904

Telephone Main 4598